UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/546,391	08/18/2005	Willem Lubertus Ijzerman	NL 030166	1027

24737 7590 06/27/2008
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
NADKARNI, SARVESH J	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
06/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/546,391	IJZERMAN ET AL.	
	Examiner	Art Unit	
	SARVESH J. NADKARNI	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed February 26, 2008, in relation to Application Number: 10/546,391 (hereinafter referred to as "amendment"). No claims have been cancelled or newly added. Claims 1-14 have been amended. Therefore, claims 1-14 are currently pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 3, 4, 5, 6, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridon, (5,757,345), hereinafter referred to as Sheridon '345, and further in view of Pamula et al., (US 6,911,132 B2) hereinafter referred to as Pamula '132.

3. With regard to claim 1, Sheridon '345 clearly teaches **display unit** (see Abstract and further see column 1, lines 39-48) **comprising at least one electro-wetting pixel** (see column 2, lines, **each electro-wetting pixel comprising: a closed cell** (see FIG. 10 element 78 described further at column 6, lines 1-42)**; a polar liquid** (see column 3, lines 30-38 describing the liquids) **and a non-polar liquid** (see column 3, lines 30-38 describing the liquids)**, said liquids being immiscible** (see column 3, lines 30-38 describing the liquids)**, having different optical properties** (see column 3, lines 30-38 describing the liquids' properties) **and being contained in said cell** (see FIG. 10 element 78 further described at column 6, lines 1-42)**; a counter electrode**

(see FIG. 10, element 70 further described at column 6, lines 47-62)**; and at least one electrode pair** (see FIG. 10, elements 66 further described at column 6 lines 48-52)**, each electrode pair comprising an address electrode** (see FIG. 10 further described at column 6, lines 1-48) **electrodes being separated from said liquids by a surface** (see FIG. 1, element 18, further described at column 5, lines 15-42) **that is lyophobic in relation to only one of said liquids** (see FIG. 1, element 18, further described at column 5, lines 15-42)**.**

4. However, Sheridon '345 differs from the claimed invention in that Sheridon '345 does not explicitly teach **a retain electrode, wherein said address and retain electrodes are arranged at respective electric potentials to control a spatial distribution of said liquids and thereby defining a multi-stable pixel state and wherein a current state is retained by applying a potential to the retain electrode in relation to the counter electrode and removing any potential from the address electrode in relation to the counter electrode.**

5. In the same field of endeavor, Pamula '132 clearly teaches **a retain electrode** (see column 8, lines 56-end and continued at column 9, lines 1-4 describing third electrode)**, wherein said address and retain electrodes are arranged at respective electric potentials to control a spatial distribution of said liquids and thereby defining a multi-stable pixel state** (see column 8, lines 56-end and continued at column 9, lines 1-4 describing operation of multi-stable pixel state) **and wherein a current state is retained by applying a potential to the retain electrode in relation to the counter electrode and removing any potential from the address electrode in relation to the counter electrode** (see column 8 lines 56-end further continued at column 9, lines 1-4, the third electrode continues to receive applied potential)**.**

6. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to incorporate additional electrode as taught by Pamula '132 into the display device of Sheridon '345 because both are within the same field of endeavor and furthermore because of improved control of the droplets positioning and reconfigurability thereby enhancing image quality (see Pamula '132 at column 5, lines 30-47).

7. With regard to claim 2, Sheridon '345 in view of Pamula '132 clearly teaches **the display unit according to claim 1** (see above)**, wherein said at least one electrode pair is arranged to provide one active multi-stable pixel state** (see column 8 lines 55 to end and continued at column 9 lines 1-4)**.**

8. With regard to claim 3, Sheridon '345 in view of Pamula '132 clearly teaches **the display unit according to claim 1** (see above)**, further comprising a control unit which is operative to apply potentials to the address and retain electrodes in relation to the counter electrode of each pixel** (see Sheridon '345 in FIGs. 1 and 14 illustrating V1 and V2 respectively further describing addressing circuit at column 6 58-end and continued at column 7, lines 1-4; or additionally see Pamula '132 at column 7, lines 6-26 describing electrode selector)**; and to set each pixel in either of at least one active multi-stable pixel state, by means of an address potential applied to said address and retain electrodes in relation to the counter electrode of the respective pixel** (see Sheridon '345 generally for electrode arrangement and additionally see Pamula '132 at column 8, lines 56 –end and continued at column 9, lines 1-4 describing drive method)**, and a passive multi-stable pixel state, by means of removing any potential from the address and retain electrodes in relation to the counter electrode of the respective pixel** (see Sheridon '345 at column 4, lines 25-35 describing removal of the electric field)**; and to**

retain a current multi-stable pixel state in each pixel by means of applying a retain potential to each retain electrode only of the respective pixel (see Pamula '132 at column 8, lines 56-end and continued at column 9, lines 1-4).

9. With regard to claim 4, Sheridon '345 in view of Pamula '132 clearly teaches **the display unit according to claim 1** (see above), **wherein the display unit comprises a plurality of pixels and wherein the pixels are arranged along rows and columns in a matrix configuration** (see Sheridon '345, FIG. 2 further described at column 2, lines 53-65).

10. With regard to claim 5 Sheridon '345 in view of Pamula '132 clearly teaches **the display unit according to claim 1** (see above), **wherein each pixel further comprises at least one additional electrode pair** (see Sheridon '345, FIG. 14 illustrating additional electrodes 162 and additionally electrodes156 available for each of three droplets 170, 172, 174), **each pair comprising a retain electrode and an address electrode** (as illustrated in FIG. 14, elements 156 as divided would serve to create two separate electrodes per elements 170-176) , **wherein the address and retain electrodes in each pixel are consecutively arranged so that the address electrodes are spatially separated from each other by retain electrodes and vice versa** (it would be obvious to one having ordinary skill in the art at the time of invention to create such a similar repeating pattern for the commonly understood benefits of simultaneous addressing of similar electrodes in a pixel arrangement), **and wherein each electrode pair provides for a multi-stable pixel state** (see Pamula '132 at column 8, lines 55-end and continued at column 9, lines 1-4).

11. With regard to claim 6, Sheridon '345 in view of Pamula '132 clearly teaches **the display unit according to claim 5** (see above), **wherein the retain electrodes within each pixel is**

electrically interconnected with each other (it would be obvious to one having ordinary skill in the art at the time of invention to interconnect electrodes for the commonly understood benefits of simultaneous addressing of similar electrodes in a pixel arrangement).

12. With regard to claim 7, Sheridon '345 in view of Pamula '132 clearly teaches **the display unit according to claim 4** (see above)**, wherein every retain electrode within each pixel arranged along the same row is electrically interconnected with each other** (it would be obvious to one having ordinary skill in the art at the time of invention to interconnect electrodes for the commonly understood benefits of simultaneous addressing of similar electrodes in a pixel arrangement).

13. With regard to claim 8, Sheridon '345 in view of Pamula '132 clearly teaches **the display unit according to claim 4** (see above)**, wherein every counter electrode within each pixel arranged along the same row is electrically interconnected with each other** (it would be obvious to one having ordinary skill in the art at the time of invention to interconnect electrodes for the commonly understood benefits of simultaneous addressing of similar electrodes in a pixel arrangement).

14. Claims 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridon '345 in view of Pamula '132 as applied to claim 1 above, and further in view of Kawanami et al, (US 6,603,444 B1) hereinafter referred to as Kawanami '444.

15. With regard to claim 9, Sheridon '345 in view of Pamula '132 clearly teaches a display unit according to claim 1 (see above). However, Sheridon '345 in view of Pamula '132 differs from the claimed invention in that Sheridon '345 in view of Pamula '132 does not explicitly

teach **wherein said liquids in each pixel have different indices of refraction and define a lens and wherein each pixel state is controlled by said lens.**

16. In the same field of endeavor, Kawanami '444 clearly teaches **wherein said liquids in each pixel have different indices of refraction** (see column 3, lines 10-57) **and define a lens** (see column 3, lines 10-57 **and wherein each pixel state is controlled by said lens** (see FIGs. 3A and 3B further described at column 6, lines 20-end and continued at column 7, lines 1-45).

17. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to incorporate the refraction indices as taught by Kawanami '444 into the device of Sheridon '345 in view of Pamula '132 because all are within the same field of endeavor and furthermore because Kawanami '444 improves light modulation of the display device (see Kawanami '444 column 1, lines 58-end).

18. With regard to claim 10, Sheridon '345 in view of Pamula '132 and further in view of Kawanami '444 clearly teaches **a display unit according to claim 9** (see above), **further comprising a light guide** (see FIGs. 3A and 3B element 309, mask, further described at column 6, lines 20-end and continued at column 7, lines 1-45), **and wherein said electrodes are operative to move the lens between an ON state in which the lens is operative to focus light from the light guide towards an exit surface of the cell** (see FIG. 3B further described at column 6, lines 20-end and continued at column 7, lines 1-45) **and an OFF state in which the lens is operative to spread light from the light guide away from the exit surface** (see FIG. 3A further described at column 6, lines 20-end and continued at column 7, lines 1-45).

19. With regard to claim 11, Sheridon '345 in view of Pamula '132 clearly teaches **a display unit according to claim 1** (see above), **wherein said liquids have different light filtering**

properties and wherein the spatial distribution of the liquids provides a controllable light filter which defines said pixel state (see FIG. 4B describing color filter 404 further described at column 7, lines 47-end and continued at column 8, lines 1-2)**.**

20. Claims 12, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami '444 and further in view of Pamula '132.

21. With regard to claim 12, Kawanami '444 clearly teaches **a method for bistable addressing of at least one electro-wetting pixel** (see column 3, lines 58-end and additionally continued at column 4, 1-8 in conjunction with FIGs. 1A, 1B, 1C)**, each pixel comprising an address electrode** (see column 2, lines 49-61 describing substrate 103)**, and a counter electrode** (see column 2, lines 39-49 describing opposed electrode 108)**, in which an active state is set by applying a potential to the address electrode and the retain electrode in relation to the counter electrode** (see FIG. 1B further described at column 3, lines 64-end and continued at column 6, lines 1-13)**; and in which a passive state is set by removing any potential from the address electrode and from the retain electrode in relation to the counter electrode** (see FIG. 1A further described at column 3, lines 41-56).

22. However, Kawanami '444 differs from the claimed invention in that Kawanami '444 does not explicitly teach **a retain electrode** and **the method further comprising the step of retaining a current state by applying a potential to the retain electrode in relation to the counter electrode and removing any potential from the address electrode in relation to the counter electrode.**

23. In the same field of endeavor, Pamula '132 clearly teaches **a retain electrode** (see column 8 lines 56-end further continued at column 9, lines 1-4 describing a 3rd electrode) **and the method further comprising the step of retaining a current state by applying a potential to the retain electrode in relation to the counter electrode and removing any potential from the address electrode in relation to the counter electrode** (see column 8 lines 56-end further continued at column 9, lines 1-4, the third electrode continues to receive applied potential).

24. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to incorporate addressing method and electrode as taught by Pamula '132 into the display device of Kawanami '444 because both are within the same field of endeavor and furthermore because of improved control of the droplets positioning and reconfigurability thereby enhancing image quality as taught by Pamula '132 (see Pamula '132 at column 5, lines 30-47).

25. With regard to claim 13, Kawanami '444 in view of Pamula '132 **a method for bistable addressing according to claim 12** (see above)**, wherein a plurality of pixels in a display device are addressed during picture frames** (see Kawanami '444 FIG. 3C)**, the method comprising the consecutive steps of: setting each pixel to an active state; setting a subset of said pixels to a passive state; and retaining each pixel in its current state** (see Kawanami '444, FIG. 3C, it would be obvious to one having ordinary skill in the art at the time of invention to address individual picture elements to achieve the commonly understood benefits of such a modification including increased control and variation of addressing individual display elements and creating or modifying a mosaic of elements to create a distinct design for the user).

26. With regard to claim 14, Kawanami '444 in view of Pamula '132 a **method for bistable addressing according to claim 12** (see above)**, the pixels being arranged in a matrix having rows and columns and the pixels being addressed one row at a time** (see Kawanami '444, FIG. 3C, it would be obvious to one having ordinary skill in the art at the time of invention to address rows one at a time for the commonly understood benefits of such a modification including increased control and variation of addressing individual display elements and linearly driving display elements to reduce redundancies in design)**.**

Response to Arguments

27. Applicant's arguments filed February 26, 2008 have been fully considered but they are not persuasive. Applicant argues Kawanami and Pamula, either alone or in combination, do not teach "retaining a current state by applying a potential to the retain electrode and removing any potential from the address electrode". Examiner respectfully disagrees. As indicated above, Pamula clearly teaches this limitation. Pamula teaches the retain electrode at column 8, lines 56-end and continued at column 9, lines 1-4 as the third electrode. The address electrode is clearly indicated in this same section as the first electrode; the potential in the first electrode is removed thereby allowing the droplet to settle between second and third electrodes, in a current state. Therefore, claims 1-14 stand as rejected above.

Conclusion

28. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARVESH J. NADKARNI whose telephone number is (571)270-1541. The examiner can normally be reached on 11AM-7PM EST Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sarvesh J. Nadkarni
Examiner – Art Unit 2629

/Amare Mengistu/
Supervisory Patent Examiner, Art Unit 2629